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DEAFNESS

-its Cause
Prevention
and Relief.

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Deafness

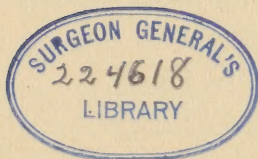
Its Cause

Prevention and Relief

A Compendium of
Authoritative Information

Compiled and Edited by
F. A. BARBER
Pres. Globe Ear-Phone Co.

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Published by
GLOBE EAR-PHONE COMPANY

BOSTON NEW YORK CHICAGO SAN FRANCISCO
LONDON PARIS

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FOREWORD

*(Written by an eminent Ear Specialist who requests
that we do not publish his name.)*

Good speed to this little book. It ought to be of much assistance in an educational way to those who are fortunate enough to obtain a copy. It ought to teach parents and guardians that in most cases deafness in later years is to be prevented by watchful care of the ears from infancy up.

It ought to teach those who find themselves just beginning to be a little hard of hearing, or who are beginning to hear subjective noises in the head, that oncoming deafness is most insidious, and that often an ounce of prevention in modern otology may be worth tons of cure.

It ought to teach the irremediably deaf that there is help for them in modern appliances which are being so studied and brought to perfection by electricians, scientists, and physicians — electrical aids whose construction like the telephone is based upon the mechanism of the human ear.

It ought to call attention to the fact, as Sir W. Dalby points out, that hearing is often diminished largely by disuse or strain and fatigue which would lead to the justifiable inference that an assistant to hear will preserve hearing; and it ought to make better known the fact that sometimes these aids improve hearing in ears which have lost a great deal.

It ought also to call attention to the deplorable fact that families are often indifferent to their deaf who are left out of many of the ordinary interests in life because it is difficult to make them understand. It ought also to suggest to the hard of hearing that they should do their part to make it as easy as possible for others to communicate with them: and the use of a little ear phone is not nearly

so obtrusive as the more or less loud tone of voice necessary in talking with them. Mutual effort in this respect would tend much to alleviate the proverbial diffidence of the deaf by bringing them into cheerful companionship out of their brooding, often morose isolation.

It ought also to make more popular the use of a device to aid hearing. It is strange that it has not been considered detrimental to advertise the fact of defective eyesight. In our modern days, especially in this vicinity, our young people are pleased to display this fact by the most ridiculous spectacles that can be devised. It has become a fad. It certainly can be no more objectionable to wear a little disc on one ear, or even both, than to place before the eyes the transparent dinner plates which we now see on the streets. Dr. D. B. St. John Roosa stated that there were only seventeen normal ears in a thousand. If that is a fact there must be proportionally many more people with defective hearing than with defective sight, and when the wearing of these little devices which are becoming less and less conspicuous with advancing excellence becomes popular it will be a happy day for those who need them but are now deterred from their use by false sensitiveness.

It must be considered by prospective users of these devices that in losing their hearing they have also probably lost the accommodation which is a property of the normal ear and therefore, they will find that they have to become accustomed to them. It is not to be expected that they can put one on and use it right away to restore their hearing to normal. It will have to be studied and experimented with before facile use becomes second nature.

Hence, it is to be hoped that the educational value of this little book will be great and that it will be a helpful factor in the coming of the time when many afflicted ones will be brought to more cheerful conditions and greater economic efficiency.

DEAFNESS AND CHARACTER

How it affects ones personality
and chances of success.

Any one who comes in contact with thousands of deaf persons in a business or professional way can not help being impressed by the vast difference in the way people "take" their deafness.

Some people treat their deafness just as they would any disease. They go to a competent physician as soon as it shows itself. If it is curable they get rid of it at once. If it isn't they learn how to prevent its increasing with unnecessary rapidity, and how to *make the most of what hearing remains*. If they can be helped by some artificial aid, they make no more fuss about it than they would over getting fitted to glasses. They make a study of adjusting themselves to the change. Instead of brooding over their deafness, they thrust it into the background and refuse to let it seriously interfere with them. They apparently feel that the time is passed when deafness is a legitimate excuse for resigning oneself to a life of inactivity.

Then there are the others—those who seem not to have the courage to *face* their deafness and overcome it—those who are afraid to know the truth and drift along, getting worse and worse. This is the type of person that so often falls prey to unscrupulous quacks,

who promise impossibilities and give only disappointment. This is the type of person that submits to being "shelved" and feels justified in becoming a burden to others.

Between these two extremes are many who are likely to fall into the latter class simply through not knowing what to do for their hearing. They don't know how to make the best of things; they don't know what they can fairly expect of themselves. They don't know where they stand.

It is they who will derive the greatest profit from the suggestions in this book. It is for them the book is intended,—especially this chapter and the one entitled "My Way Out" on page 37.

Since it is easier to follow advice and to take precautions if one clearly understands the reasons for them, we preface this collection of expert's suggestions with an article by Dr. Charles Burnett on "The Anatomy of the Ear." (Pages 8-13.)

This is followed by "Deafness and the Care of the Ears," by Dr. A. M. Fanning. "The Prevention of Deafness," by Dr. Adair Dighton. "The Fatigue of Deafness," by Dr. Clarence J. Blake, and various other articles.

Dr. Blake's helpful article about the nervous strain of deafness is followed by a message from an active business woman who has been remarkably successful in overcoming the handicap of a very serious case of deafness. (See pages 37-40.)

Her story seems to emphasize a fact which we have often noticed,—that deafness seems inevitably to leave a very strong impress on character, either strengthening or weakening it. We know of many people who, before becoming deaf, seemed to be ordinary enough, just like everyone else, but when deafness came they were forced

to focus their attention on the problems of life, with the result that they went ahead and became conspicuously successful.

So few people do concentrate and focus their efforts in this way, that those who do can easily overcome the handicap of deafness. We believe from our observation that this increase in power is possible to all deaf persons who will overcome the inertia and the sensitiveness that usually are present in the early stages of deafness.

Deafness is undoubtedly a disadvantage, and doubly so when one has a morbid sensitiveness, but many persons have won fame in spite of worse drawbacks. The extra effort a runner puts forth to overcome his handicap often wins the race.

The only difference between those who are made weaker by deafness and those that are made stronger, lies in the *action*, the *effort*, the *doing* of things to overcome the handicap and put it into the background.

A lame person does not resign himself to a wheelchair, to be wheeled around by others, but gets a crutch or a wooden leg, so that he can walk and work independently. A very near-sighted person does not retire into seclusion or depend on others to help him find his way. He straightway gets fitted to the best pair of glasses obtainable, and if he still stumbles occasionally, he has everyone's respect, because it is evident that he has put forth his best effort to help himself to see.

So it should be with a deaf person. The very act of buying and using the best possible hearing aid develops that initiative and decision, and leads to that concentration and strengthening of purpose which will win out not only over the handicap of deafness but over every other obstacle.

ANATOMY OF THE EAR

from "Diseases and Injuries of the Ear. Their
Prevention and Cure."

By Charles Henry Burnett, A. M., M. D.

Aural Surgeon to the Presbyterian Hospital. Consulting Aurist, Pennsylvania Institute for the Deaf and Dumb.

Lecturer on Otology, Women's Medical College of Pennsylvania in Philadelphia.

Ex-President of American Otological Society.

Fellow of the College of Physicians of Philadelphia.

(Published by J. B. Lippincott Co.)

The most
complex
organ

The organ of hearing, or the ear, is the most complex of all the organs of special sense. For the sake of convenience in speaking and writing of the ear, it is divided into three parts; — viz., the external, the middle and the internal ear.

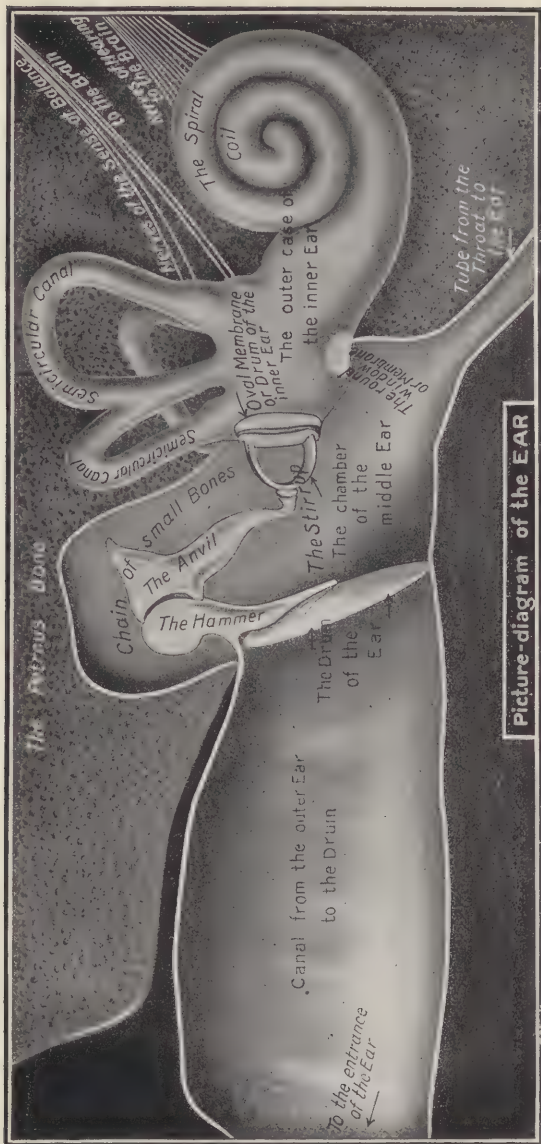
The external ear is composed of the auricle, commonly termed the ear, and the canal leading from it to the drum. This canal is termed the external auditory canal. It is about one inch and a quarter long. The auricle, the auditory canal and the drum membrane are the only parts of the ear visible from without. The other parts of the ear are situated beyond the drum membrane, and are, of course, invisible.

The middle ear is that part lying between the drum head, or drum membrane, and the internal ear. In this cavity of the middle ear lie the three ossicles of hearing, or auditory bonelets.

ACKNOWLEDGEMENTS

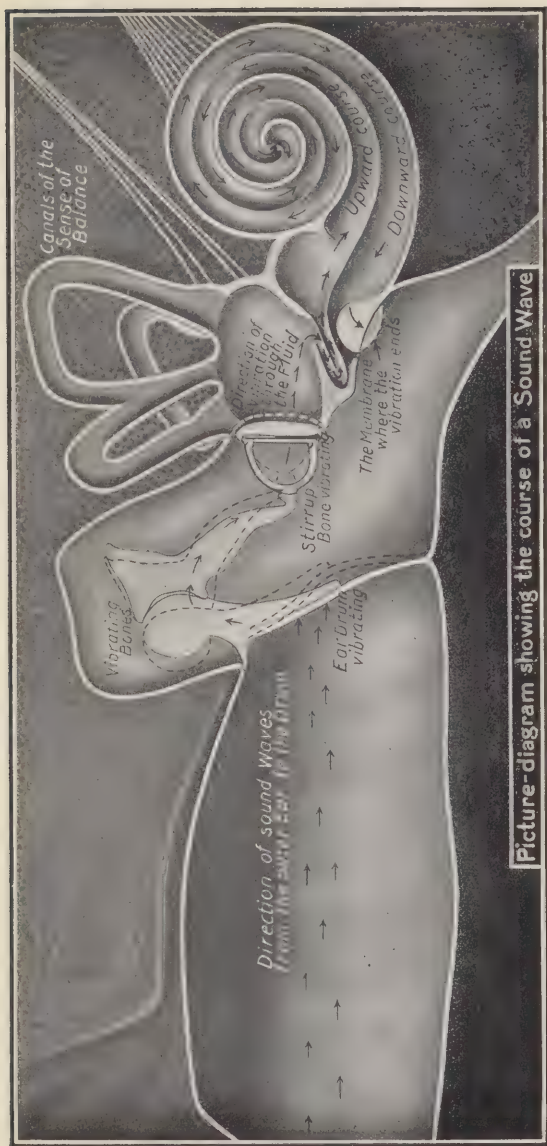
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We also acknowledge with thanks, permission to reprint extracts from copyrighted publications as follows: "*Diseases and Injuries of the Ear, Their Prevention and Cure*" published by J. B. Lippincott Co., Philadelphia. "*Deafness and the Care of the Ears*" from the "Popular Science Monthly," published by D. Appleton & Co., New York. "*On The Prevention of Deafness*" from "Information Bulletin No. 2," published by the British and Foreign Deaf Association, London. "*Deafness Among School Children*" published by the U. S. Bureau of Education. "*Adenoids and Deafness*" from "Surdus in Search of His Hearing," published by Evan MacLeod, and copyrighted by Evan Yellon, London. "*The Fatigue of Deafness*" from the Atlantic Monthly, published by Houghton, Mifflin Co., Boston, and "*The Preservation of Hearing*" from "Longman's Magazine," published by Messrs. Longman and Co., London.



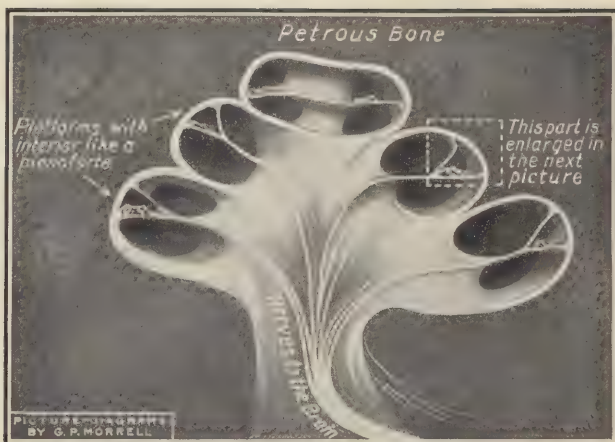
Picture-diagram of the EAR

This diagram shows the inside of our ear, from the entrance to the end of the nerve that passes to the brain. The drum is stretched across the end of the canal, and on the other side is the chamber of the middle ear, filled with air that enters from the throat. In this chamber are three small bones, the hammer, the anvil, and the stirrup, the last being fixed to the drum of the inner ear, which is shaped like the coils of a snail's shell.

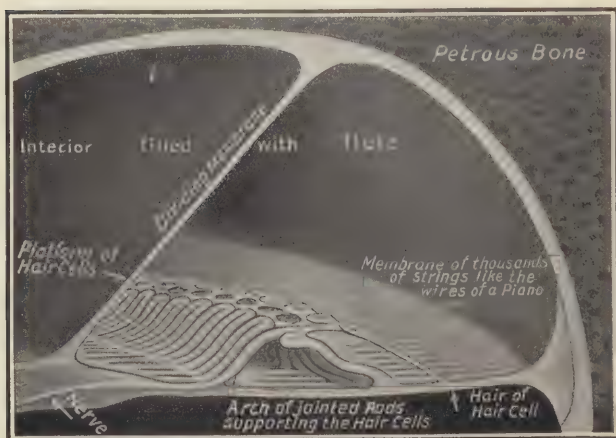


Picture-diagram showing the course of a Sound Wave

Here we see a sound wave striking the drum of the ear. The vibration moves the handle of the hammer, which pulls the anvil and pushes the stirrup, as shown by dotted lines, against the drum of the inner ear. Tiny waves of the fluid inside this inner ear pass through a membrane which lines the shell, and, traveling round the coils in the direction of the arrows, communicates its sensation to the nerve, and then returns by another canal.



In this picture the spiral coil is cut through from top to bottom. The little galleries are filled with fluid, and contain very marvellous organs. The part in the dotted square is shown enlarged in the picture below.

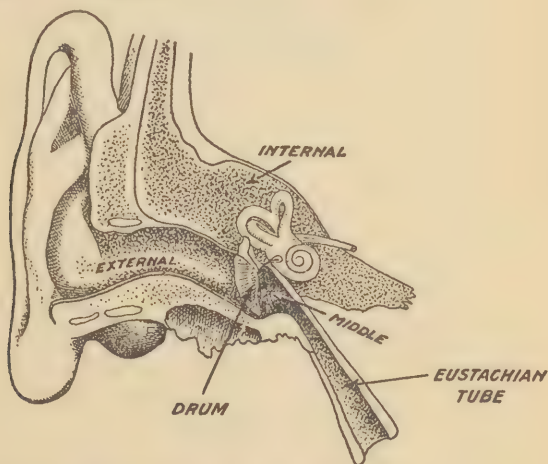


Over 3,000 little hammers, jointed like those of a piano, support thousands of hair cells that rest on a membrane. More than 10,000 strings are stretched across, like piano wires, and these convey the wave sensation to the nerve.

In the internal ear is the nerve of hearing. This part lies entirely in bone, and is a small space. It is near the brain, in the petrous or stony bone, so called from its hardness.

The middle ear is the seat of most of the diseases of the ear. Its structure, therefore, demands a brief consideration. It is composed of the drum cavity and two important adjuncts, — viz., the mastoid cells behind, and the Eustachian tube, connecting the ear with the nose, in front. The drum cavity is the most complicated and delicate of the three portions just named and is most liable to disease.

The part
most liable
to disease



Drum Cavity. This cavity may be described as bounded by four walls, a roof and a floor. The three auditory bonelets are the most important contents of this chamber. It is, however, lined with a most sensitive mucous membrane, which when inflamed gives rise to excruciating pain. This important cavity is

about half an inch in height and width, and from a twelfth to a sixth of an inch deep, measuring from without inward, and lies just beyond the drum membrane. The mucous membrane which lines it is a continuation of that of the nose and upper part of the throat. This cavity is the true drum, and to it the name of drum should be applied. When the name of drum is given to the drum membrane, or drum head, great confusion arises.

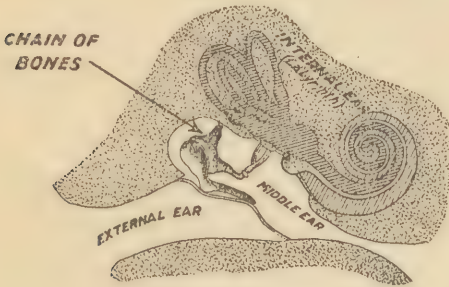
Smallest
bone in the
body

Auditory Bonelets. The ossicles of hearing, or auditory bonelets, are three in number, the hammer, the anvil and the stirrup. They form the so-called "chain of bones" of the ear... The stirrup is the innermost of the three bones we are considering. It is also the smallest bone in the body, its entire length being one-eighth of an inch. It is divided into a head, a neck, two legs, and a foot plate. At the junction of the two legs is found the head, in the form of a cup-shaped button. It is designed to receive a knob-like projection on the end of the anvil's long limb. The two legs of the stirrup are made lighter, without being weakened, by a furrowing on their inner surfaces. The foot plate is ovoid, or slightly kidney shaped, and fits accurately into the oval window of the labyrinth, in the inner wall of the drum cavity. In this window it is hermetically held by a fibrous packing. The connection is thus made between the outer ear and the drum head, on one side, and the labyrinth and the nerve of hearing on the other. The entire chain of auditory bones moves in and out as a whole, performing a pendulum-like motion about the axis line in the

Movement
of auditory
bones
produces
hearing

folds. This kind of oscillation, to and fro, on the part of the drum head and the chain of auditory bones causes the foot plate of the stirrup to play backward and forward in the most minute excursions. This movement of the stirrup, in turn, sets the water in the labyrinth in motion, and impresses the auditory nerve, *producing thereby hearing.*

How
hearing
is produced



Eustachian Tube. This tube, or canal, forms the only aerial communication between the nose and the ear. It opens near the posterior nostril in the upper part of the throat, behind and above the palate. Its course is upward, outward and backward toward the drum. . . . Two-thirds of the tube is cartilage; the other third is bone. It is lined with mucous membrane, continuous with that of the throat, nose and drum cavity. *Hence diseases pass readily from the nose and throat to the ear.* This tube is provided with muscles which arise from the palate and are attached to its cartilaginous part. When these are moved in swallowing they draw the cartilaginous walls of the Eustachian tube apart and allow air to enter the drum cavity.

Diseases
reach ear
from nose
and throat

This is necessary for the healthy action of the ear. If it is deprived of air for any length of time, deafness and earache set in.....

The Internal Ear. The internal ear is also called the labyrinth. It is composed of the vestibule in the middle, the cochlea in front and the semi-circular canals behind. It is a hollow, bony cavity containing soft tissues of a similar shape, also hollow, and receives the expansion of the auditory nerve. An oval window is in the vestibule. Through this window by means of the foot plate of the stirrup-bone pass the waves of sound in normal hearing, on the way to the auditory nerve. The vestibule cavity is pear shape. It is about one eighth of an inch wide from within outward, and a little more than three sixteenths of an inch measured from front to back. Its four walls run together where the cochlea begins. This latter cavity, as the name implies, is shaped like a snail-shell. It is in fact a bony canal wound two and a half times about a bony pillow. The canal of the cochlea is partly divided longitudinally by a bony shelf, which portion is completed by a membrane. Thus we find the cochlea canal divided into two smaller canals, or stairways, as they are termed. . .

The bony labyrinth a hollow cavity normally filled with water

The semi-circular canals, three in number, communicate with the back part of the vestibule. Thus we complete the sketch of the bony labyrinth. This is a hollow cavity and in its normal condition filled with water. In this are supported delicate soft structures similar in outline and shape to the bony case containing them, and hence called the membranous labyrinth. They may be considered hollow casts of

the bony labyrinth. *They contain in their soft and delicate cavities the terminal nerve-branches of the acoustic nerve.*

The following is quoted from another part of the same book by Dr. Burnett. It is of special value to people living in tropical climates.

QUININE

When one has taken a cold in the head, his ears are in danger of inflammation though the vast majority of patients do not know this. It becomes of the highest importance to the ears now to adopt a proper treatment. The patient's mind must be disabused of the very widespread popular notion that a cold can be broken by taking large doses of quinine. Nothing in fact is more likely to bring on a disease in the ear which may otherwise escape than taking large doses of quinine to check the cold as many say. They give to themselves and their friends ten to twenty grains at a time, usually with results of further discomfort to the ears. Quinine tends to congestion of all parts of the ear. When we come to consider the diseases of the internal ear, it will be shown that large doses of quinine may permanently injure the auditory nerve.

Taking
quinine for
a cold---
a dangerous
practice

DEAFNESS AND THE CARE OF THE EARS.

By Abram Mills Fanning, M. D.

From "The Popular Science Monthly."

(Published by D. Appleton & Co., New York.)

It is astonishing to realize how little is known by the laity of the simplest rules for the preservation of health.....

Probably the two most important senses are those of seeing and hearing; and it is of these same two that the least is known by the general public, and that the greatest number of absurdly ridiculous, dangerously improper popular remedies are used for. It is the purpose of this writing to correct in some measure this misconception in regard to the ears.

The great majority of all forms of deafness are dependent upon and directly resultant from affections of the nose and throat.

In the city of New York and vicinity, owing to the extreme variations of the temperature and climate from day to day, it is indeed a rarity to find among the people who have lived here any time a perfectly healthy nose and throat. Such

Climatic
effect upon
the hearing

repeated sudden extremes of hot and cold damp weather, which are so common in this location, are ruinous to the throats of even temporary visitors with perfectly healthy respiratory organs; and the effect is so marked, the condition so universal among the inhabitants of this city, that children of catarrhal parents are born with a swollen, catarrhal condition of the inside of the nose and throat which within very few years closes the nostrils so that proper respiration is impossible, and the child becomes what physicians call a "mouth-breather." We meet these children constantly in the streets. The climate of Brooklyn is even worse in this respect.

Sometimes
hereditary

From the condition of a "mouth-breather" it is but a short step to one of two results — more often both: deafness, and that peculiarly stupid, sleepy, inane, foolish expression of countenance so characteristic of the "mouth-breather."

Mouth
breathing
should be
investigated
at once

To parents who have the welfare of their children at heart, such a warning as this should be of sacred importance. As soon as the child gives evidence of a tendency to breathe constantly through its mouth, just so soon should intelligent medical investigation be made of its nostrils, preferably by a proper specialist.

Most of our population have some general ideas of catarrhal affections of the nose and throat, but very few except those who have lost their hearing from it have any conception of its intimate causal relation with deafness. The popular idea of catarrh is that it is a condition of more or less constant discharge of offensive mucus from the nose. This is so only in the most aggravated and worse forms of the

Catarrh
the most
common
cause of
deafness

disease, and fortunately is rare. Properly speaking, catarrhal affections of the nose and throat are simply an enlarged, swollen, and thickened condition of the lining membrane of the nostrils and back part of the throat. This thickened condition of the mucous membrane in the nose is usually accompanied by an increased production of mucus, which often drops backward into the throat, and, by increased moisture in the back of the throat, excites the continuous little hacking cough to dislodge it and clear the throat.

Catarrhal
patients
and
"colds"

These patients are very subject to what are called "colds in the head," with complete closure of the nasal passages. The reason their colds in the head are so severe is because a very slight swelling of the inside of the nostrils, which is always the condition in this acute disease, occurring in a nose already much narrowed by a chronic permanent enlargement of its lining membrane, totally obstructs the nasal canals.

A common
remedy to
be avoided

A very common but unhealthy remedy for temporary or permanent occlusion of the nose is to snuff a solution of salt and water through the nostrils. Unfortunately, this practice has been too often thoughtlessly recommended by family physicians. If the habit is prolonged, the condition for which it is used will surely be aggravated. A much better solution to use in the nose, and also as a gargle in acute sore throat, instead of chlorate of potassium, is common baking soda (bicarbonate of soda), a teaspoonful in a cup of warm water. Whatever solution is used in the nose it is a great mistake to forcibly snuff it into the nostrils from the palm of the

hand, as is too commonly done. If it is snuffed too forcibly, it is forced into the upper part of the nasal cavity, where it is very irritating, often causing headache and irritation of the eyes. The best and simplest way to use the soda solution is to bury the nose entirely in the cup of fluid, and then gently suck the solution into the nose, at the same time holding the mouth widely open. There is no risk of choking if the mouth is open and the head thrown forward, as it necessarily is in doing this, for all the fluid will run out through the mouth. A few trials will readily demonstrate the advantage of this method over all others.

How to
use soda
solution

Probably all the laity, so to speak, when first they realize that their hearing is diminished, believe that the wax has accumulated and has blocked the auditory canal. The sensation to them is certainly one of obstruction, and they seem justified in picking at the canal of the ear in attempting to remove the obstructing substance.....

Danger of
using
ear-scoops

It must be emphasized right here that the ear-scoops and ear-sponges for sale in all drug-shops are worse than useless; they are positively dangerous. Many are the ears that have been incurably injured by such instruments. There is more wisdom than humor in the old saying that we ought to put nothing in our ears but our elbows. At any rate, let no one put anything into the auditory canal but the end of the little finger wrapped with a handkerchief or a towel.

If deafness is of sudden occurrence, accompanied by a dull, rumbling sound in the ear, similar to that caused by temporarily closing

the canal of the ear by the finger, with a sensation of fullness of the canal, and absolutely painless, obstruction from accumulated wax may be suspected. But there is no means of positively determining this, except by having the ear carefully examined by some competent observer.....

Ring
in the ears;
often an
early
symptom

The earliest symptom of beginning deafness in many cases is a ringing sound in the ears. Many patients describe it as a noise all through the head rather than in the ear itself. It is at first intermittent and occasional. The ringing may be present for some time, scarcely perceptible, when suddenly the sound will change, becoming much louder, and the note jumping high up in the scale, where it will continue to ring quite loudly for some minutes, and gradually die away, to appear again some time afterward. It may reappear in a few hours, as the trouble with the ears progresses. Ringing in the ears may also be the prelude to an acute attack of earache; but it is here followed very soon by pain, which so predominates over the ringing that it is no longer heard.

Superfluous
hearing

If the hearing is properly tested just as soon as the ringing in the ears has become more or less constant, some degree of deafness will be detected. As the case progresses, even before all the so-called superfluous hearing has been destroyed, the patient will realize that he is becoming deaf. For this condition there is nothing to be done by the patient himself. Advice from a physician should be obtained just as soon as diminution of hearing is suspected.

Much can be accomplished, however, by the patient toward preventing the deafness becoming worse. Careful attention should be devoted to the general health, to keep the nose and throat in as healthy condition as possible — to prevent “taking cold,” especially colds in the head. Exposure to changes of weather should be avoided; the feet never being allowed to become wet, or, if they do become wet, the shoes and stockings should be changed for dry ones as soon as possible. Turkish baths and plenty of outdoor exercise are strongly to be recommended, to stimulate the circulation and inure the system to changes of weather.

How to
check the
advance of
deafness

Another great class of troubles which is sadly misunderstood by the public is the acute inflammations of the ear. There are few pains in the human body more distressing than earaches. Many have been the nights of agony passed with pain in the ear, because the proper remedy has not been known in the household.

Earaches
and their
relief

Almost every conceivable thing has been used for earache by patients of high and low degree. With the exception of baking soda, already mentioned — and I have considerable hesitancy in trusting even that to popular use — nothing should ever be dropped in the ear except hot water. When the ear is throbbing with pain, the hot douche is the best means to employ for relief. In this condition any kind of a syringe is available, for there is not much probability of the sufferer throwing a stream forcible enough to increase his pain. Very hot water should be used. A quart of plain water as hot as can be endured should be injected, repeating it as often

The
only safe
remedy

as is necessary—every five minutes, even.

To secure rest at night and between the intervals of necessary douching, fill the auditory canal with hot water, cover the whole side of the head with a napkin wrung out in hot water, and tie a dry towel over the entire head.

Cases
requiring
medical
advice

Simple tenderness in front of the external ear or in the canal means either a pimple or a boil in the canal. In this condition also, hot douching and hot-water applications are the only safe remedies to employ at home. Medical advice must be sought early, to open the little abscess and allow the matter to escape.

Violent, throbbing, deep-seated earache means an abscess within the drum cavity of the ear; and this is a serious disease — often ruinous to the hearing, and even dangerous to life. The advice of a physician, preferably a specialist, is indispensable; and the above hints are not at all intended to supply his place, but merely to anticipate his arrival.

ON THE PREVENTION OF DEAFNESS.

By Adair Dighton, M. B., F. R. C. S.

Hon. Assistant Surgeon, Eye and Ear Infirmary, Liverpool, Hon. Aural Surgeon, Birkenhead Children's Infirmary, Hon. Aural Surgeon, Toxteth Infirmary, Liverpool, Council, British Oto-Laryngological Society, Vice-President British and Foreign Deaf Association, Author of "Diseases of the Naso-Pharynx," 1912.

*Issued by the British and Foreign Deaf Association,
31 John Street, Bedford Row, W. C., London.*

A medical writer has laid down the apparent paradox that the best time to treat deafness is before it begins. This simply means that to prevent, or avoid deafness, is infinitely a better thing than to attempt its cure. Of the legions of deaf people at this moment, it is estimated that probably one-half the number might have prevented or held at bay their infirmity. This they could have done by giving immediate heed to the preliminary warnings of catarrh in the nose or throat, or to the significance of "running ears," and by taking warning from the small defects of hearing which made themselves manifest. For these signs are invariably the prelude to a definite deafness.

Prevention
better
than
cure

Connection
between
nose,
throat and
ear

What most people do not understand is this: that the nose and throat must be regarded as constituting parts of the ear; and that in addition they are joined to the ears by means of two tubes — the Eustachian tubes. The function of these tubes is to drain and ventilate the ear, and it has been proved that anything which interferes with this function will cause deafness. The logical lesson to be deduced from these facts is that, if we desire to maintain the faculty of hearing, the nose and throat must receive proper care. Any deviation from the normal which may appear in them is an ominous sign, and unfortunately it is one most frequently ignored until too late.

Colds:-
their effect
upon the
ears

Many cases of "cold in the head," with the other unpleasant symptoms, bear with them a diminution in the hearing power; with the cure or the passing away of the cold, what to the individual represents normal hearing is regained. But in less happy cases recovery to the normal does not take place; the cold is not thoroughly removed, the ailment becomes a chronic catarrh, and very often there is decided loss of hearing in more or less degree. Now if these cases were to come under the care of the skilled aurist at the onset of the mischief, the bulk of incurable deafness would undergo a vast reduction. But they seldom do come before the aurist at the right time, and in the period of delay all the damage is wrought.

Catarrhal
deafness
a general
term

The term "catarrhal deafness" is a convenient one; at the same time it is a loose and generic term. It does not convey any idea of the exact conditions which, in the individual case, cause

the deafness. Catarrh, when it is allowed to attack the ear, is capable of bringing about many and widely different changes. For this reason there is not, never was, and never can be, any one cure or any one set course of treatment applicable to all cases of catarrhal deafness. Each must be treated strictly on its own merits; and the qualified medical specialist — the man who has made ear, nose, and throat diseases his great study, who is able to examine all these organs, deduct from what he sees and hears regarding the case, and thus arrive at an individual diagnosis — is the only man who really can help those who fall victims to this form of deafness.

No
treatment
applicable
to all cases

A further word of warning should be offered regarding catarrhal deafness. There is an old treatment, originated by Valsalva, which consists in pinching the nose and the same time blowing the cheeks out. This proceeding causes an inflation of the ear with air, and in some cases temporarily improves the hearing. The treatment is so simple that it has been passed from one deaf patient to another without medical advice. When it is remembered that the term "catarrhal deafness" covers a large number of widely different conditions, it cannot be expected that one treatment will be equally good for all. Valsalva's method actually does harm if persisted in for too long, and it should never be used at all unless by the express orders of a competent aural surgeon and under his constant supervision.

Dangers of
Valsalva's
treatment

There is a widespread and most dangerous superstition that a discharge from the ear should be left alone; some people even holding the amazing fallacy that the condition is beneficial to

Discharge
from the
ear is a
serious
symptom

health. The plain truth is that "running ears" either go hand-in-hand with a serious defect of hearing or the condition surely leads up to deafness. But this is not all. The most experienced aural surgeon in all the world cannot tell for certain in what direction the mischief indicated by discharge from the ear may take its way if neglected. There is always present the danger of sudden and alarming, if not fatal, complications. At any time the possessor of the ear may hand in his life as forfeit for neglect. To all intents and purposes, the person with chronic and neglected ear discharge is as one who gaily smokes a pipe while seated on an open keg of gunpowder. The fact that no good life assurance office will issue a policy on a life in which this trouble is present will make patent to every intelligent mind the grave nature of the life-risk involved. These cases can only be treated by the aural surgeon, and they should always remain under his care until dismissed by him as being cured.

Care of
children's
ears

When children's ears "gather" and then break, the child should be taken to the aurist, and should remain in his care until the middle ear is normal, and the perforation in the drum (which broke in order to let out the discharge) is healed. Otherwise the ear may continue to discharge, the perforation will not heal, and the child cannot enjoy perfect hearing or perfect health. Neglected ear discharge in children ought to be made a criminal offence on the part of parents or the guardian responsible for the child's well-being. Persistent ear-ache in children should not be left until the ear "breaks,"

Neglect of
ear
discharge
is criminal

the case should be in the care of the aurist before this happens. And the ears of children, together with the nose and throat, require to be very carefully watched after measles, scarlet fever, and other infectious disorders, for discharge and deafness frequently make their appearance as the sequelae.

An enormous number of children suffer from adenoid growths at the back of the nasal passages. Unless speedily removed by a simple and perfectly non-dangerous operation, these growths result in defective breathing ("mouth breathing"), stunted development, deafness, and consequent dull mentality. The deafness which results from adenoids is usually banished when the cause of the trouble is removed; but when a child is permitted to go from year to year under the ban, the deafness is then liable to become an irremediable and an increasing defect. It is in the neglect of children, as regards their ears, nose and throat, that we have one of the great root causes of much of the present-day deafness in adults. With the establishment of properly-equipped school clinics, we may look forward to a marked lessening in the future sum total of deafness.

Adenoids
a common
cause of
deafness

Watch
your
children

How
boxing the
ears may
cause
deafness

Of one bad habit the teachers in our schools must be warned. One knows from experience how aggravating young children may be, and how tempting it is to box their ears; but if it were only realized how dangerous is this proceeding, it would soon become obsolete. The sudden rush of air which is forced into the ear by the movement of the hand, plus the sudden impact of the blow, is liable, in fact prone, to

cause rupture of the drum, and so deafness. Almost all occupational deafness can be prevented. "Norfolk deafness," "boiler-makers" deafness, and "big gun deafness," are all preventable. But once they are allowed to set in and to develop apace they rapidly become serious and incurable types of deafness. If "big gun deafness" were not preventable, it is fair to say that the majority of the officers and men who man such guns would be deaf. These men invariably use protectors to their ears, and for this reason they escape deafness in all but comparatively few instances. Engineers, boiler-makers, and others who are obliged to spend their workaday lives amid incessant noises should guard their ears carefully if they, too, would escape deafness.....

Swimmers and divers also should protect their ears. They would be astonished if they but knew the large amount of deafness which is traced back to diving or swimming with the ears unprotected. In diving the sudden rush of the water is sometimes so severe that the ear drum is ruptured. In other cases, cold and impure water getting into the ear gives rise to severe, and often purulent inflammation, deafness being the outcome.

It is only at the hands and by the skill of the qualified aural specialist that we may hope for the cure of deafness. The means of treatment being readily available, and the chance of cure resting mainly on the question of early treatment, it is left with those who are threatened with deafness to decide for themselves if or not their cases shall go to swell the ranks of the incurably deaf.

DEAFNESS AMONG SCHOOL CHILDREN.

By Samuel Sexton, M. D.

Aural Surgeon New York Eye and Ear Infirmary. Member Am. Otological Society. Member Am. Medical Congress.

Published as a Circular of Information, by the U. S. Bureau of Education.

Affections of the ear from sympathy of the nerves occur more frequently than from any other cause; they are characterized by the insidiousness of their approach, serious injury to the organ of hearing often taking place without being heralded by any symptom of warning. Generally, however, there are appreciable symptoms which attract the patient's attention, although they may not always at first seem to threaten the ear. Perhaps the most frequent precursor of these is taking cold.

Symptoms
to watch

In order to understand fully the significance of taking cold in the head through sympathy of nerves, it would be well to explain the peculiar character of the parts involved.

Taking cold
in the head

The cavity of the nose, the region chiefly affected, enjoys an immense expanse of mucous surface, far greater in extent than the modest external aspect of the organ would indicate; thus, where the cavity of the nose expands into the throat behind, its passages are greatly convoluted and an extensive and tortuous cavern is thus constituted. This posterior and much ex-

panded portion of the nasal cavity is covered by a highly vascular mucous membrane — the Schneiderian membrane — which is easily irritated, either by the entrance of particles of dust or by the reflex irritation to be described below. At the beginning of a cold in the head the blood vessels of this membrane become engorged, when the flow of mucus, which is naturally secreted in moderate quantities, is usually very much increased. The phenomena of a nasal catarrh are now soon manifest.

Head
colds and
deafness

During the existence of most head colds the ears are exceedingly liable to be involved; thus, the Eustachian tubes may be obstructed by the swelling of their mucous membranes, when the usual air supply of the drum cavity will be cut off; or the catarrhal inflammation may extend from the throat up the Eustachian tubes and thence into the drum cavity. Both of these conditions usually coexist and give rise to much deafness.

But the ear may be affected without this catarrhal extension through the Eustachian tube. Thus, an independent inflammation may arise in the ears through the nervous sympathy existing between them, the throat, or nose.

In a certain number of instances the effect of taking cold may be manifested in the ear alone, the naso-pharynx escaping entirely. The aural complication is announced by a "stuffy" feeling in the ears; there are noises and autophony experienced and more or less deafness.

Relation-
ship
between
teeth and
ears

Dental irritation. By referring back to the *modus operandi* of taking cold, it will be readily understood how any dental irritation may give

rise to aural disturbances, for the nervous relationship between the teeth and the ears is most intimate. In this manner many affections of the ear which were formerly attributed to other influences may now be accounted for. The reflected neuralgias from dental caries are quite familiar to most readers, but it frequently happens that, through the nervous influence referred to, a morbid action is set up in the ears, and continues almost indefinitely without being attended with any marked pain in either the teeth or the ears, and therefore without attracting the patient's attention. But in a great many instances pain, either in the teeth or ears or in both, is a prominent symptom.

Deafness in middle-ear catarrh presents all variations from slight impairment to almost absolute abolition of hearing. It is progressive, although its progress may be so slow that the patient may not be aware that any increase of deafness is taking place. In such cases often some slight exacerbation of the symptoms due to a fresh cold, by making the hardness of hearing a little more noticeable, calls the patient's attention to the fact that he is deaf. Being thus suddenly made aware that he does not hear as well as he used to do, he is apt to charge the whole attack to the account of the exciting cause then present, and yet when we examine the ear we find abundant evidence that the disease has already been in existence for a long time. And in all cases in which the deafness appears to be suddenly initiated or discontinuous, it is probable that if we could have the patients under continuous observation the impairment of hearing would be found to be really more or less progressive.

Deafness
steadily
increases
unless
preventive
measures
are adopted

ADENOIDS AND DEAFNESS

From "Surdus in Search of his Hearing."

By **Evan Yellon,**

Editor of the Albion Magazine for the Deaf, etc.

Honorary Secretary, British Association for the Deaf.

Not infrequently it happens that a child is blamed and punished by teacher or parent for inattention, when really it is suffering from adenoids, and the consequent dullness of hearing, or distinct deafness.

The term adenoids, or adenoid vegetations, means an overgrowth of the glandular tissue which is found on the back of the upper part of the throat, into which the nose opens. This overgrowth of tissue may become so great, that it fills up the portion of the throat, and so obstructs the passage of air through the nose and into the Eustachian tubes. The child is then obliged to breathe through the mouth, and all sorts of complications are likely to ensue, deafness being one of them.

According to the best medical authorities, adenoids are most frequently met with between the ages of six and fifteen. Hall and Tilley are responsible for the statement that ninety per cent of all the cases of deafness among children are

Age when
adenoids
occur

due to adenoids; but this estimate seems to me rather over-drawn. The causes are many and varied, and it would not serve a useful purpose to enumerate them in detail: adenoids may be due to heredity, to climatic influences, or to bad feeding and insanitary surroundings. After measles, or any other of the acute infectious diseases to which children are liable, and particularly scarlatina or diphtheria, it is necessary to watch carefully for troubles which may be due to adenoids, for they are most likely to develop after these diseases. This will also apply in the cases of children who are constantly taking cold, or who suffer from catarrh.

Likely to
result from
measles,
scarlatina
or
diphtheria

The serious nature of adenoids in children cannot be too firmly impressed on parents; it may be said, and with truth, that if the trouble is not removed in time it will set back the development of the child to an enormous extent, and, indeed, may adversely affect its whole mental and physical life. It means stunted growth, bad chest development, a characteristic face, dull mentality, and, most likely, distinct deafness.

Adenoids
almost sure
to cause
dull mental-
ity and
deafness

The signs of adenoids are usually clear, even before the nose and throat are examined. The child has a dirty nose, breathes through the mouth, and thus is obliged to keep it open, snores at night, and sometimes has marked vocal defects. Of course, a medical man would not diagnose adenoids by these signs alone, he would seek for other signs by means of an examination of nose and throat: the symptoms here described are merely laid down as signs which would warrant the parent's seeking advice from a medical specialist.

How to
recognize
presence of
adenoids

A simple
operation
removes
them

The treatment for adenoids depends on a number of things, among them being the age of the patient, and the conditions which the surgeon finds to be existing. It is best to follow the advice given by the specialist after he has made his examination; and, if he advises an operation for the removal of the adenoids, there is no cause for fuss or alarm. Speaking generally, adenoids are best removed, and as the requisite surgical treatment is very simple and non-dangerous, when carried out by an expert, sensible people will offer no objection to it. The child is placed under the influence of an anaesthetic, usually nitrous oxide, and the adenoids are removed by means of a suitable curette. The operation only takes some thirty to forty seconds; and, as a rule, the child is only detained in bed for a day or two. But I would emphasize the wisdom of taking the patient to a proper specialist for the treatment, which is best carried out by one possessing that experience which practice alone gives.

An experi-
enced
specialist
needed

Deafness due to adenoids usually disappears after the cause has been removed, when no other aural complications are present. But it must not be expected that the child will regain normal hearing at once: it sometimes takes many months of patient treatment to remove the deafness consequent on adenoids. And if it happens that definite aural trouble is present, the patient must remain under a specialist's care for some considerable time. Where no deafness is present, it may follow on the operation, but will generally disappear within a brief period.

Time
needed to
effect cure

THE FATIGUE OF DEAFNESS.

By Dr. Clarence John Blake.

"Professor of Otology, Harvard College," "Consulting Aural Surgeon, Massachusetts Charitable Eye and Ear Infirmary." Editor Am. Journal of Otology 1879-82. President 9th International Otological Congress. Author "Operative Otology" etc., etc.

From the Atlantic Monthly, November, 1912.

Published by Houghton Mifflin Co., Boston

.. That impairment of the hearing power should be an inconvenience is readily understandable; that it may make so large a demand upon the nervous energy as to be a source of fatigue, needs personal experience, or observation, for its full appreciation.

In view of the fact that the normal ear has very nearly double the amount of hearing power necessary for the ordinary uses of every-day life, it is comprehensible that one-half of the binaural power may be lost without serious inconvenience to the individual; beyond that point of defect, however, a distinctly appreciable effort must be made to hear, and, in default of this, a still further effort to gather, through other sensory channels, such information as may serve to supplement the defective hearing.

The normal ear has twice as much hearing as it needs

How sight
helps
hearing

The channel especially available for this supplementary purpose is that of sight, because through it there may be brought to knowledge the character of the particular mechanical process originating the mode of motion to our appreciation of which we give the name of sound; and the most important illustration of this visual aid to defective hearing is found in the effort to appreciate the sounds of the voice at their true formative value. While the vowel sounds are the threads upon which the parts of speech are strung, the consonant sounds are checks or alterations of tone, of differing form and force; and those which nearly resemble each other, in both force and musical value, are produced by the coordinating operation of very nearly the same sets of muscles, and hence are accompanied by very nearly the same facial expression.

Consonants
most easily
heard

Given, therefore, an average case of marked impairment of hearing, the results of a slowly progressive middle-ear disease, for instance, the patient will hear most readily the consonant sounds which require most muscular force in their production, including the four explodents, — *t, d, p, b*, — very nearly resembling each other in force and tone-value, and all formed in the front of the mouth, *p* and *b* being distinctly labial, and *t* and *d* as distinctly due to the contact of the tip of the tongue with the upper incisors. In the event of a thickening of the drumhead, or other lessening of the mobility of the sound-transmitting apparatus of the middle ear, an obstacle is presented to the passage of sound-waves inward; excluding especially such

short sound-waves of moderate intensity as those constituting the upper partials of the consonant checks.

In the higher grades of imperfection of hearing, therefore, both the effort to hear and the effort to see, combined, are inadequate to the presentation to the mind of the complete spoken sentence, since there remain gaps in the array of consonant sounds which must be filled in from the context; the completion of the sentence thus presented meaning the solution of a puzzle, and being, therefore, a third demand upon the nervous energy, in addition to those required through the medium of hearing and of sight.

For the deaf, hearing is the solution of a difficult puzzle

In other words, the exercise of the ordinary communication with his fellow men demands of the person of imperfect hearing the operation of three distinct brain-processes to achieve that which is normally accomplished without conscious effort; and the resultant fatigue may be justly estimated as a possibly important factor in many cases of nervous over-strain.

Three mental processes needed to accomplish what is normally done unconsciously

The majority of the human handicaps are more evident, and better understood, than is the impairment of hearing, which, without outward sign of disability, may first become of public knowledge as an obstacle to the conduct of the ordinary affairs of life and, therefore, as something to be contemned; a condemnation reflected often upon its unfortunate possessor, who finds himself thrust aside because he is apparently too slow to comprehend, or because the obstacle to be overcome in getting into touch with him, demands too great an effort in its surmounting.

Daily experiences of this sort, coupled often with the disappointment in the effort to live usefully and self-sustainingly, bring about a sense of isolation and of imprisonment, adding much to the fatigue and incident depression of the pitiably deaf; and while there are no apparent wounds to bind, there are gashes in the spirit and inroads upon the strength of our fellows who hear imperfectly, which make it incumbent upon us to halt a little in the hurry of the highway and give aid.

ALMOST AS GOOD AS A CURE

In the course of a popular lecture delivered at the Harvard Medical School in Boston, April 5, 1914, Dr. Blake made the following statement which was widely quoted in the press as indicating the great advance made in the relief of deafness by means of the telephone-aids or "Ear-Phones."

"In the early days of otology, when an impairment of hearing was regarded as an irremediable affliction, the only recourse for the deaf was an apparatus to collect the larger segment of the sound waves and pour it into the ear.

"Though these instruments are still in use today to some extent, they are cumbersome and only partly effective, and are open to the objection that they are indiscriminate sound collectors, sometimes forcing other sounds than those of the voice into the ear and themselves producing sounds.

"The readiness of hearing by means of the ordinary telephone has led to a duplication of this process on a small scale for people with impaired hearing, revolutionizing the practice in this line and insuring to these unfortunates a condition almost as good as a cure."

MY WAY OUT

An

Autobiography

The author of this chapter does not wish her name published, for obvious reasons. She has made a wonderful success in her line of work—doing business in Boston, New York and Chicago and frequently going abroad for material. She directs the activities of scores of other persons and she claims that—but we will let her tell about it in her own words.

I was a little girl of nine when I had the attack of scarlet fever that was responsible for my deafness, but it was not till I had been out of college three years that it really closed in upon me. All through those years it had hovered threateningly on the outskirts of my consciousness; in fact, most of the time I had been under the care of a famous specialist, whose constant warning was, "Don't work hard; don't catch cold; live out of doors."

At last the time came when my deafness refused to be ignored any longer. It began to interfere with my teaching. For months I struggled on—seating near my desk the pupils I had most difficulty in hearing, and standing right in their midst while teaching. At the end of one summer I realized that I could not en-

duce the strain of another year's work, and I gave it up. For the first time in my life I was without an occupation.

Since the day I was five years old I had been expected somewhere every morning at nine o'clock, and now it made no difference where I was at nine o'clock or ten o'clock or twelve. I wasn't expected anywhere ever again. Back I went to my old doctor. He listened to my story, took both my hands in his and said, "You'll have to study lip-reading, sleep twelve hours a day and study landscape gardening."

He explained that to compensate for my burden of deafness I must rest twelve hours out of the twenty-four. I tried it, and found it so depressing that it seemed hardly worth while to get up at all.

The lip-reading lessons dragged on for two years. After infinite toil I was able to read my mother's slow and exaggerated enunciation, and no one's else. I had no heart for the landscape gardening.

Then one day I noticed a cabby wearing an electric hearing instrument. I'd heard of them before, even seen them, but could not picture myself using one. Why the cab-driver's example should have inspired me, I don't know, but I stopped him, asked him about his instrument, and without giving myself a chance to reconsider, called at the office of the Globe Ear-Phone Company.

The Company gave me every opportunity to test their various models, and I put them to the severest possible test. Figures selected at random were read to me while my eyes were closed. In the end I chose a Globe Ear-Phone that could be fitted into my handbag, for convenience in using. I soon learned how to use it successfully.

Then my courage began to come back. I resolved

to find myself an occupation. I had always had a mild interest in rugs and furniture—in all that goes to furnish a house. I had once taken a course in design; I could draw a little, and years before I had pursued a “period” furniture fad for a whole winter. On the top wave of my enthusiasm over my restored hearing, I succeeded in persuading a leading interior decorator to give me a chance. He happened to need someone who could roughly represent his ideas on paper, and I was only too glad of the most modest opening. I stipulated that I should not be required to talk to any but a chosen few; even then, I never expected to mingle freely with the world again.

But before I knew it, I was too busy to be conscious of my deafness—I found I had ideas of my own, and I was soon ransacking the city for the rugs, drapery fabrics, wall papers and furniture, needed to carry them out. As a matter of course I began to see customers; I could trust no one else to advance my plans, and then it was I discovered I could sell.

When that fact dawned upon me, I realized I was absolutely free, and began to contrive means of getting into business for myself. At last a way opened.

So now I am in business for myself, and I certainly do not sleep twelve hours a day. Would I have done better if I had never been deaf? Sometimes I think my instrument is my greatest asset. It rivets the attention of everyone with whom I speak. The assumption seems to be that I am not talking unless I have something to say.

Best of all is the fact that my deafness has stopped progressing. With mind occupied and nerves released from the strain of attempting to hear beyond the range of my ears, my hearing holds its own. My only regret is for the two years thrown away before I got my

ear-phone — two years worse than wasted, for during that time my hearing failed very rapidly, I suppose partly through disuse, and partly from the nervous strain and depression I was enduring. That was several years ago. I now have two instruments, a small one, adequate in strength for use at close range, and a large one for conferences where speakers are somewhat scattered.

Socially, too, my life has expanded again. Before I had my ear-phone, I shrank from making new acquaintances. Even my old friends wearied me, though these I counted jealously, expecting never to make any more. Now I can listen indefinitely without fatigue. With my stronger instrument I can follow conversation at the dinner table.

I look upon my Globe Ear-Phone with the same solicitude and affection that a violinist bestows upon his fiddle. I like to see it before me, to feel it is at hand. It saves me from all embarrassment—all need of explanation. Far from being ashamed of it or wishing to conceal it, I am positively glad to wear it. It serves to make it evident to the world that I am never intentionally unsocial.

Once more I have my place. I have reestablished my connection with the outside world and it is the Globe Ear-Phone that has made it possible.

“THE PRESERVATION OF HEARING.”

By Sir W. Dalby

From Longman's Magazine.

Published by Messrs. Longman & Co., London.

..One and all must be prepared to lose the hearing in various degrees as life advances towards old age, and it will be to advantage of such that they should in the first place apprehend the reasons why the processes of degeneration which are natural to old age should diminish hearing, and in the second place, what mode of life tends on the one hand to delay, and on the other, to hasten those processes. To begin with, after the age of about forty-five the elasticity of the arteries of the body becomes less; they do not in consequence of their thickening supply sufficient nutriment; the nervous centers, therefore suffer from malnutrition. Whatever, then, are the influences which promote degeneration, will also tend to produce loss of the special senses; of these the hearing more than in the case of any other. It will be admitted generally that of all the causes which hasten degeneration, the drink-

After age
forty five
arteries lose
elasticity

Nervous
centers
suffer from
malnu-
trition,
deafness
likely to
follow

ing of anything more than a very small amount of alcohol after middle life is the greatest; next, perhaps, comes anything more than a moderate diet. Amongst other causes may be counted an insufficient amount of fresh air or sleep. Now, beyond the influences above named, there is nothing, perhaps, which ages men so much as worry and anxiety, or women so much as strong emotion of a painful character—in other words, mental shock. From these nothing can guard humanity, but in regard to diet, air and sleep, much can be done.

Straining
the ears
increases
deafness

It is not generally recognized how damaging anything like strain is to the ears, and with some persons whose hearing is only slightly affected, the deafness is indefinitely increased by attending sermons and lectures of which they can only hear a part, and during the delivery of which the ears are kept overstrained. The exhaustion and increased deafness which follow fail to warn them how much damage they are doing to an already affected organ, although they are willing enough to recognize how damaging overstrain is to the eyes, when they read small print with difficulty or do very fine needlework by a bad light.

How use of
hearing
aids pre-
serves the
hearing

Many persons are under the impression that the use of aids to hearing is likely to injure the ears. The facts are entirely the reverse of this, for anything which helps the hearing avoids the strain.

{ The italics are ours. We believe this statement is worth emphasizing }
{ to help correct a false idea held by many people.--Ed. }

WHAT TO DO AND HOW TO DO IT.

From these few quotations from eminent authorities it will readily be seen that the best way to stop the progress and relieve the strain of deafness is to secure a good hearing aid **and use it**—making the most of what hearing you have. In the following brief paragraphs we shall describe some of the best types of aids and give some practical advice on how to select a suitable one.

Select a
good aid
and use it

Obviously the first step to take when threatened with this trouble is to promptly consult a reputable specialist. He may be able to avert the progress of the deafness or even to effect a cure. Many cases of deafness, however, are of a type which will not respond to treatment. In perhaps the great majority of advanced cases the specialist can help but cannot cure. What can be done for cases of this sort? That is the question with which this chapter deals. No one but a deaf person can appreciate how serious this handicap may become unless he stirs himself to action.

First see a
competent
specialist

It is well to remember that the use of a properly selected hearing aid tends to preserve whatever degree of hearing may remain. The

hearing should be exercised. In his work, entitled "Diseases and Injuries of the Ear," Dr. Charles Henry Burnett says:

"If deaf children are placed in schools for the deaf and dumb, they will grow deafer because their remaining hearing gets no exercise and by falling into disuse, grows worse or is lost entirely." He goes on to recommend that they be forced to attend school with hearing children, because "this will force them to exercise their hearing and they will be kept from falling into the comparatively hopeless class of deaf mutes." This reasoning applies just as strongly to deaf adults as it does to deaf children.

The well known Ear Specialist who wrote the *FOREWORD* for this little book said (on page 3) that—"It ought to make better known the fact that sometimes these aids improve hearing in ears which have lost a great deal." And he went on to say, referring to the modern electrical Ear-Phones.—"When the wearing of these little devices which are becoming less and less conspicuous with advancing excellence, becomes popular, it will be a happy day for those who need them but are now deterred from their use by false sensitiveness."

Dr. Grace Peckham Murray, in an article which appeared in *The Delineator*, truly remarked: "If one has an infirmity of any kind, it is much less noticeable if one carries it off jauntily without an effort at concealment. If you have a suspicion that your deafness has become a serious obstacle to conversation with your friends, have an examination made; have your hearing tested; try one

Use what
hearing
you have

Medical
indorse-
ment of
hearing
aids

of the many instruments which have been invented and see how much you can gain for yourself and friends in ease of interchange of ideas."

HEARING AIDS

Roughly speaking, hearing aids fall into two classes: A electrical, and B mechanical. By electrical aids we do not mean those giving electrical treatment or massage, as these are, or should be, confined to physicians' use. Some manufacturers of hearing aids have been accustomed to give away electrical vibratory massage instruments with their goods, as a sort of premium; but such devices for treatment are never safe to use, except by or under the advice of a competent aurist. To quote again from "Surdus In Search of His Hearing" (page 83): "It must never be forgotten that in the matter of an organ so delicate as is the ear, any form of treatment is best carried out under proper medical advice."

Two kinds
of hearing
aids
mechanical
and
electrical

The electrical hearing aid or ear-phone is made on the same principle as the telephone, but is much more sensitive and powerful. It consists of three parts. 1. The transmitter which collects and transmits the sound waves. 2. The receiver which is held against the ear, and 3. The battery which supplies the electrical current.

Electric
instrument
same
principle as
the
telephone

The cost of maintaining batteries varies of course according to the amount of use the instrument gets, but on the average the cost

is not over 2 cents per day, which is certainly a small amount to pay for the use of your hearing.

Dr. Blake's
endorse-
ment of the
electric Ear-
Phone

Dr. Blake, the celebrated Boston specialist, once said in reference to the service and value of the electric ear-phones: "The readiness of hearing by means of the ordinary telephone has lead to the duplication of this process on a small scale for people with impaired hearing, revolutionizing the practice in this line, and assuring to these unfortunates *a condition almost as good as a cure.*"

A recent
invention

The development of ear-phones has been very recent, the earliest instruments dating back only about fifteen years. The early instruments were not very efficient; in fact ear-phones could not be thoroughly efficient until the invention of our rheostat sound regulator, which was patented in 1912. This improvement marked the beginning of a new day for the deaf, because it made the ear-phones adjustable to different degrees of sound according to varying conditions. It is a well-known fact that deafness in most individuals varies from day to day, according to the weather and according to one's physical condition. Also the circumstances under which one is listening are constantly varying, and only an adjustable aid can give the most efficient results.

(Facing page 49 is a reproduction of an article about the rheostat sound regulator which appeared in an English magazine for the deaf--- The Albion Magazine for June 1912.)

The number of mechanical hearing aids is legion, but they can be divided into three classes:

A. horns and trumpets; B. conversation tubes; and C. artificial ear drums (so called). At this point we would warn our readers against the danger of inserting anything into the ears, and especially the artificial ear drums, which are advertised under various names as wonderful aids to hearing. They are seldom of any value, and are apt to be dangerous in many cases. For further particulars, we would recommend persons interested to send ten cents in stamps to the **American Medical Association, 535 North Dearborn Street, Chicago**, for a copy of their book "Deafness Cure Fakes," which is well worth the trouble to secure, and may save one many dollars that might otherwise be wasted on fake devices.

Mechanical
aids

Some are
dangerous

In regard to the horns and trumpets, and the conversation tubes, our advice would always be to secure those which do not stick into the ear, since anything inserted in the opening of the ear is apt to cause irritation, besides being unsanitary.

Avoid aids
that have
to be
inserted in
the ear

PRACTICAL HINTS

There is no distinct line between those cases that are helped by mechanical aids and those that require the electrical aids. In fact many deaf persons use both kinds, according to circumstances and personal convenience. The radius of sound gathering power of the electrical aids is much greater than that of the mechanical ones, and the electrical aids magnify sounds to a much greater extent. Also they can be adjusted to suit varying conditions, by means of the rheostat sound regulator on the cord.

Compari-
son of aids
mechanical
and
electric

On the other hand, some mechanical aids, such as the new Audi-Aid, are lighter and much simpler to use, as they have no cords, switches or batteries. The mechanical aids are usually more conspicuous than the electrical ones, because with the ear-phones, the whole instrument can be concealed except the small earpiece, about the size of a watch, and even this a lady can conceal by doing the hair low to cover the ears.

Many deaf persons use the little "Audi-Aid" in traveling, shopping, etc., and the more powerful electrical ear-phones for use in the home or office, for listening to music, receiving callers, or transacting business.

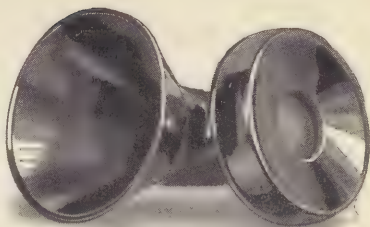
For the past ten years, as importers, manufacturers and dealers in hearing aids, we have made a careful study of the devices which have given the most satisfactory service, and as a result of practical experience in fitting thousands of cases of all degrees of deafness, we have developed and perfected a complete line of instruments which have been tested, tried and proven as beneficial.

For the purpose of this book, we are describing the two best mechanical aids, and the two best electrical aids, and then will explain how easy it is under our liberal terms of trial, for any deaf person to try out these instruments, and prove their worth and value before purchasing.

The most simple and convenient mechanical device is the new Audi-Aid, which is illustrated opposite. This little instrument is made of hard rubber, weighs only two ounces, and can

The illustration of the Audi-Aid is about half size. The Audi-Tube, which we do not illustrate, has the same flat ear piece as the Audi-Aid fitted to a hard rubber handle which in turn is fitted to a three foot silk conversation tube, diameter 3-4 inch.

AUDI-AID



NO. 16 JUNIOR EAR-PHONE

Illustration 1-2 Size

Our "3 piece" Jr. Phone, as illustrated, has the transmitter (at the top) separate from the battery so that it can be pinned on or under the clothing as desired, and adapted for use by either men or women. We also make a "2 piece" or vest pocket style which has the transmitter attached to the top of the battery. This model, Jr. 14, is especially adapted for men's use.



THE DESK EAR-PHONE

The above illustration is about 1-5 size of the model P Desk Phone, and about 1-4 size of the model Q. The ear piece may be fitted with a telescoping handle, or an adjustable headband if desired.

"GLOBE EAR-PHONES ARE TO THE EARS WHAT GLASSES ARE TO THE EYES"

REGISTERED TRADE-MARK



With a Globe Ear-Phone fitted in her bag, as shown above, a woman feels quite at her ease when shopping or going about, even if she is troubled with deafness. The transmitter and battery are carried in the bag, and connected to the ear piece by a small silk covered wire. The ear piece and cord are partially concealed by the hair.



The Globe Ear-Phone will gather sound from a long distance and magnify it so that a person who is hard of hearing can enjoy music and other social pleasures. When properly worn it is not conspicuous.



In business, deafness is no obstacle when the Globe Ear-Phone is used. The transmitter is worn in the vest pocket and a headband leaves both hands free.



The Desk Ear-Phone is the ideal instrument for office use, or for the dining table at home. It is very powerful, and will make even whispers audible to most deaf persons. Those who think their hearing is entirely gone should not give up all hope until they have tried a Desk Ear-Phone.

The 10 tone sound regulator on the cord allows a wide range of adjustment for all degrees of deafness.

The following very flattering notice was published several years ago when our sound regulator was first invented. We prize this indorsement very highly, as it was entirely unsolicited and was written by one of the best known English authorities on deafness. The writer himself has been deaf for many years and can speak from a wide experience on the subject of hearing aids.

The Albion Magazine

A Bi-Monthly Magazine Review published in the Interests of the Deaf

Copyright

No: 7 (NEW
SERIES)

APRIL - JUNE, 1912

Price Threepence

THE LATEST ELECTRIC AID

BY SURDUS

The Globe Ear-Phone Company, of Boston, is undoubtedly the most progressive of all the firms specializing in the manufacture of electric aids to hearing, and their latest instruments carry unique features.

Of the Globe Company, it can be said in simple honesty—they lead in improvements, others follow them. Behind the Company there appears to be a mind familiar with the different needs of the Deaf, and bent on working out the best scientific means of meeting these needs.

The Company was the first to perceive that, as the degree of hearing in the individual case is apt to vary, a fixed power electric aid cannot be the best aid. They devised the first adjustable receiver to come on the market—that is, a receiver which the deaf user could adjust by very simple means; this feature now figures in several other aids—but it was the first in the Globe instrument. They have just placed on the market a small rheostat switch, which gives what I have so often urged on makers of electric aids—a resistance enabling the power of the current to be controlled. This feature is unique in electric aids, and the Globe instrument is the only one carrying the improvement.

This is the most important improvement in electric aids it is possible to conceive; and the Boston people are to be congratulated on their enterprise in the matter.

All the products of this Company are splendidly carried out, and their instrument must rank as the most scientific aids for the Deaf now obtainable.

be almost entirely concealed by the hand when held up to the ear. In fact, using the Audi-Aid attracts no more attention than the common expedient of holding your hand behind your ear to catch a little extra sound. That is just what the Audi-Aid does, — catches extra sound, and concentrates it through the horn. The Audi-Aid is constructed on scientific principles so that the sound waves are concentrated, but do not strike directly against the ear drum, being intercepted by a diaphragm. This diaphragm also serves to magnify the sound waves and transmit them to the ear in pleasing, natural tones. The receiver part of the Audi-Aid is placed against the ear, and not inserted in the opening — thus being comfortable and sanitary, and avoiding any possible danger to the ear drum. There is nothing about the Audi-Aid which can get out of order and it should last a lifetime with ordinary care. Although less powerful than our electrical instruments, it is, we believe, the best device ever invented for those who do not require an electrical aid. The price of the Audi-Aid complete with cap and case is \$7.50. The adjustable head band is \$1.00 and the telescoping handle \$1.25.

Principle
of the
Audi-Aid

Low cost
of this
device

Persons who are very deaf need either a powerful electrical aid, or a conversation tube. Various kinds of conversation tubes have been sold for years, but most of them have been objectionable from sanitary and other reasons. Our new Audi-Tube overcomes these objections, being constructed with a flat receiver or ear-piece which is held against the ear the same

The
Audi-Tube

way as the Audi-Aid. Also the bell mouthpiece which is necessarily used by many persons, is made of shell, and can be easily removed and cleansed as often as desired. The price of the Audi-Tube with shell mouthpiece is \$9.00, or with hard rubber mouthpiece \$8.00. Also we have Midget conversation tubes with bell on each end—shell \$4.00, or hard rubber \$3.00.

Coming now to the electrical aids, we find the most satisfactory type is the small portable Junior instrument illustrated opposite page 48. This instrument is adapted for persons who are quite hard of hearing and who need the sharp, penetrating tones of an Ear-phone to “wake up” the ears. The sound regulator on the cord allows of six different adjustments of strength or tone, so that this instrument is adapted for a wide range of cases and can be used successfully under almost any ordinary conditions. Price, with sound regulator \$25.00.

The transmitter, or sound gathering part, can be worn under the coat or waist and it will still gather sound through thin material. A light spring headband holds the receiver to the ear and it is easily possible for a woman to do her hair low so as to cover up the ear-piece entirely, and thus the whole instrument will be concealed when in use. The battery can be carried in the pocket or under the belt or in a small chatelaine bag.

For persons who wish a strong hearing aid for occasional use in the home or at the office we would recommend the Desk Ear-phone which we illustrate on the page facing 48. This box instrument has an exceptionally

strong, clear tone and it is an ideal instrument for use at the dining table, in the music room or when entertaining callers in the home. Also for business purposes it meets the most exacting needs of the busy man who has many callers and who needs a hearing aid of sufficient power so that visitors can speak in a low voice and still be heard in comfort. It is wonderfully efficient for use at directors' meetings, etc.

The batteries in the desk phone are much stronger than those used with the small portable instrument and they will last from three to six months without renewing. The sound regulator on the cord allows of ten different adjustments of sound. The current is shut off when the receiver is hung up, just as with the ordinary telephone. The receiver and cord are detachable, so that if desired, the instrument can readily be made portable.

Ten
gradations
of sound

The desk phone is made in two sizes: Model P weighing 6 pounds, including the battery, and Model Q weighing 4½ pounds with the battery. Both styles are regularly finished in black morocco leather but on special order will be finished in polished wood to match any furniture or fixtures. The price of Model P is \$50.00 complete, with flexible spring headband and battery, and the price of Model Q is \$40.00 complete.

The fullest
possible
benefit

Many persons wishing to get the fullest possible benefit from their hearing find it convenient to use both a Junior Ear-Phone and a Desk-Phone, according to circumstances.

FAIR PRICES AND SERVICE

Service the
important
consider-
ation

In considering the question of fair prices to pay for hearing aids, it is necessary to take into account more than the first cost of the aid. The most important consideration is the service the instrument will give, and the standing of the concern who sells it to you. In this connection, we quote the following which is written by the editor of the *Albion Magazine*, Evan Yellon, who is deaf himself and is the author of several well known books on deafness. In the August, 1912 issue of the "Albion" he said

"I know the factory prices of practically all electrical aids.....and a medium quality instrument is cheap at from four to five guineas (\$20 to \$25). For the upper grade instruments, six to twelve guineas (\$30 to \$60) is not an unfair price.....

The price
question
considered
by an
English
authority

"It would be exceedingly difficult to find better value for the money than the four guinea Maxiphone (German) instrument; or the middle priced Globe instrument. The fine workmanship in every Globe instrument makes them the cheapest things the deaf public are likely to meet with.....

"The true value of any article is not what it cost to make, but the quality of the service it gives to us. I sit here before a Barlock typewriter, and on my desk I have a Waterman fountain pen. Now the typewriter costs twenty-six pounds, and the pen twelve and sixpence. I can buy a typewriter for exactly half the price of my Barlock, and a pen for a third the price of my Waterman; but hard experience has taught me that the cheap typewriter, and the three-

and sixpenny pen, will not give me the same service; and what I have got are really the cheapest things I can get.....

“It is the same with aids to hearing. If an aid gives sterling service, and service one cannot find elsewhere ‘Just as good,’ it is worth its price.”

There is nothing you can buy in which service is more important than in hearing aids, especially the electrical Ear-Phones, which are sensitive instruments and need not only the most skilled labor in manufacturing, but need occasional inspection and cleaning by an expert. In other words an Ear-Phone should have the same careful attention that one would give a valuable watch.

Realizing the value of such service, we maintain a service department, which provides free inspection and cleaning for all of our instruments during the entire period covered by our ten year guarantee. With every phone sold, the purchaser is given a set of coupons, which are attached to our guarantee.

Our
service
department

On the following page we show condensed reproductions of our 10 year Guarantee and Service Announcement.

The following condensed reproductions of our Service announcement and our Guarantee will show how strongly we stand back of our goods.

Free Inspection Service.

To facilitate the constant and unfailing service of all our instruments, we have instituted a Free Inspection and Cleaning Service for users of Globe Ear-Phones.

When you purchase a Globe Ear-Phone, fill in your name and address on the attached coupons, and send us one coupon with your phone each time you want it inspected. Send direct to our factory in Boston and not to any branch office or agency. We recommend using a free coupon at least once a year and we will send you more coupons when these are used up.

10 Year Guarantee.

We guarantee this GLOBE EAR-PHONE No..... for ten years from date of sale. We guarantee it to be constructed of the highest grade materials by the most expert mechanics, and we will at all times stand back of it, replacing without charge any parts that may be found defective in any particular. Also, if the instrument gets out of adjustment we will put in it order, without charge, unless we find that it has been taken apart or tampered with.

If this Ear-phone is repaired outside of our factory the condition of this guarantee is altered and our liability shall cease.

OUR TRIAL OFFER

The question naturally arises after reading the foregoing description of our most popular instruments, "Which one is best suited to my needs?"

We have found from our experience in fitting thousands of cases that most persons find satisfactory results with either the Audi-Aid or the Junior Ear-Phone, and many find it beneficial to use both of these, according to circumstances, — sometimes the mechanical aid is more convenient, and sometimes the electrical.

The only way to finally settle the problem of buying hearing aids is to try them out, — to test them in your home or office,— and this is what we want you to do, entirely at our expense.

So that you may not hesitate in securing the proper aid, we are glad and willing to send you whichever instrument you may select without the payment of one cent. Just write us, giving one or two references, and we will send you promptly by parcel post, or prepaid express, the instrument you have selected. We ask you to try it out thoroughly and then if it is not adapted to your case send it back to us, and you will be under no further obligation.

We suggest that you let us send both the Audi-Aid and the Globe Junior Ear-Phone, so that you can compare them in daily use. It is always true of any hearing

aid that the more you use it the more it will help you, as your ears get accustomed to it. The first results in using a new hearing aid are apt to be discouraging, because the ear has been more or less dormant for some time, and it needs to be re-educated to sound, especially to the sound of the human voice. For this reason we hope that you will test these two instruments at a time when you can practice thoroughly with them, following the daily schedule of practice which we will send you.

Somewhere in our assortment of aids is the device you want. If we were not confident of this, we would not go to the trouble and expense of forwarding them without a cent of payment. But we insist that you be satisfied before you purchase. In other words, we assume the entire burden of proof. It is not a case of your money back if not satisfied, but rather no payment at all until you are satisfied.

Remember that most cases of deafness are progressive, and the trouble becomes worse unless you take measures to prevent its advance. Do not delay in accepting our free trial offer. Write us at the following address.

GLOBE EAR-PHONE COMPANY,
Tremont Temple, 88 Tremont Street,
Boston, Mass., U. S. A.

THE CRAWFORD PRESS
South Weymouth,
Mass.

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